



*Diabetes*

FACT BOOK



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## FACT BOOK

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
Public Health Service  
Division of Chronic Diseases  
Diabetes and Arthritis Branch



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## FOREWORD

The estimated prevalence of diabetes in the United States has been increasing during the past decade, and is expected to become even greater as our adult population over 40 increases. Almost half of the 2.9 million people who have diabetes do not know it and consequently have never been under a doctor's care for the disease.

These undetected diabetics are candidates for serious chronic disability, blindness, and premature death unless they are found and treated early enough to prevent such late consequences of the disease. Diabetes is the third leading cause of blindness and ranks eighth among the leading causes of death in the United States.

Though diabetes is not preventable, the late disabling effects can be minimized through early detection and treatment. Increased diabetes casefinding especially among older persons, the obese, relatives of known diabetics, and parents of babies who weighed more than 9 pounds at birth can make a strong impact upon the control of this serious public health problem.

This fact book contains important data culled from various sources which we believe will be valuable to physicians and other health workers in organized and voluntary health agencies interested in developing diabetes casefinding programs or in expanding existing ones. It was compiled by Quentin R. Remein, Assistant Chief, Technical Development Branch, and Lydia S. Shields, Public Health Analyst of the Division of Chronic Diseases.

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Table 1

Estimated prevalence of known and unsuspected diabetes and  
rate per 1,000 population by age,  
United States, 1959

<u>Estimated number of cases (in thousands)</u>		
	<u>Known cases<sup>1</sup></u>	<u>Unsuspected cases<sup>2</sup></u>
Under 25	1,530	1,400
25-44	67	51
45-64	199	240
65-74	246	360
75-84	424	366
85 and over	416	258
Total	177	126
 <u>Rate per 1,000 population</u>		
Under 25	9.0	8.1
25-44	0.9	0.7
45-64	4.4	5.2
65-74	12.4	17.9
75-84	28.4	24.2
85 and over	42.9	26.2
Total	35.6	24.5

Source: National Health Survey: Diabetes reported in interviews, United States, July 1957-June 1959; Public Health Service Publication 100-100, Washington, U.S. Government Printing Office, 1960.

<sup>1</sup> Cases defined as diabetes unsuspected by the patient or physician. Estimate prepared on basis of studies and surveys by the Arthritis Branch, Division of Chronic Diseases.

## KNOWN CASES OF DIABETES

Approximately 1.4 million of the persons who have diabetes are not aware of their condition. They have never been under a doctor's supervision for diabetes. Epidemiologic studies indicate that these persons are: older, more obese, more frequently relatives of persons with diabetes, somewhat more likely to be women, and more likely to be parents of large babies. These persons constitute 8.1 persons per 1,000 of our population and represent our national diabetes casefinding problem.

## KNOWN CASES OF DIABETES

Diabetics who have at some time been diagnosed by a physician current 1.5 million persons or 9.0 persons per 1,000 population. Independent estimates of the Division of Chronic Diseases based on epidemiologic community studies and the National Health Survey based on household interviews of a random national sample in 1957-59. The estimates are 1.5 million and 1.53 million cases respectively.

Prevalence of diabetes increases with age reaching a peak at ages 65-74 and slightly thereafter. As shown in table 1, there is more known diabetes than unknown among persons under 25 years of age and among persons 55 years and older. In the adult years (25-54 years of age), however, the proportion is reversed -- there are more unknown cases in the population than known cases. No objective evidence can account for this, but a logical explanation is that the juvenile type of diabetes is characteristically acute and thus likely to be discovered; and in the older age group persons have begun to develop and clinical symptoms appear in previously asymptomatic persons. In the young adult and middle years, the onset of diabetes is very likely to be asymptomatic. It is significant that the proportion of persons with diabetes remaining undiscovered and untreated is large at all ages.

Table 2 shows the prevalence of known diabetes by age and sex. The prevalence of diabetes is greater for males under age 45, but in every age group thereafter it is greater among females. Little is known of the relative prevalence among men and women in the currently undiagnosed group of diabetics. There is some evidence that the difference in male and female rates of previously unknown diabetes in case-finding programs is small among the known cases. Perhaps this is because men do not seek medical attention as frequently as women.

Table 2

Average prevalence of known diabetes and rate per 1,000 population by age and sex, United States, July 1957-June 1959

Age	Average number (in thousands)
	Male
All ages	660
Under 25	40
25-44	106
45-54	108
55-64	181
65-74	156
75 and over	68

	Rate per 1,000 population
All ages	8.0
Under 25	1.1
25-44	4.9
45-54	11.2
55-64	25.2
65-74	34.4
75 and over	31.5

Table 3 shows the prevalence of known diabetes by age and residence for the population. Diabetes is a problem of smaller communities and rural areas as well as possibly even a slightly greater one in the small urban and rural areas.

Table 3

Prevalence of known diabetes among persons 45 years of age and over by age and residence, United States, July 1957-June 1959

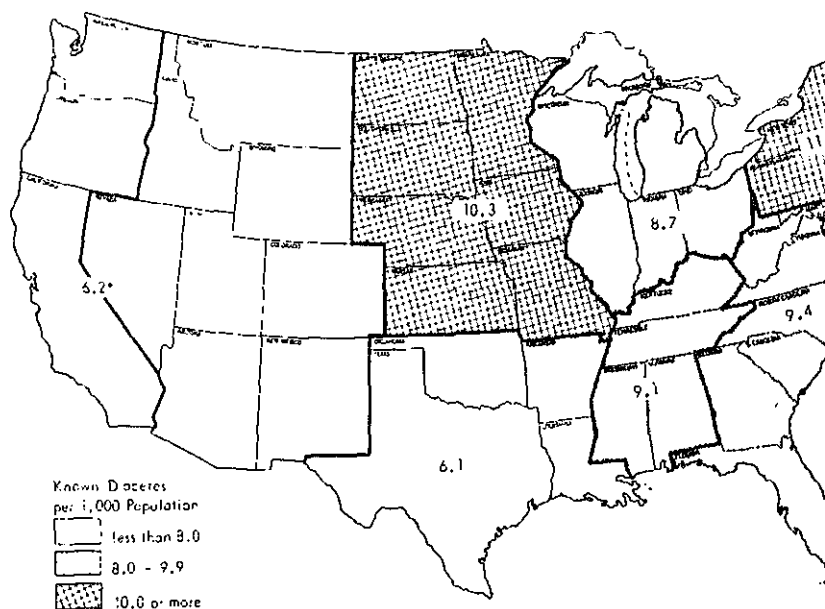
	<u>Number of cases (in thousands)</u>		
	<u>Urban</u>	<u>Rural nonfarm</u>	<u>Rural farm</u>
ages 45 and over	802	297	100
54	157	54	19
64	268	99	34
74	264	103	36
and over	112	41	14
<hr/>			
	<u>Rate per 1,000 population</u>		
	<u>Urban</u>	<u>Rural nonfarm</u>	<u>Rural farm</u>
ages 45 and over	24.8	26.9	24.1
54	12.1	12.0	11.2
64	27.0	31.2	27.8
74	41.7	47.8	41.7
and over	35.8	34.4	31.4
<hr/>			
Age-adjusted			
rates, ages 45 and over	24.8	27.1	24.1

Source: U.S. National Health Survey: Older persons, selected health characteristics, United States, July 1957-June 1959. Service Publication No. 584-C4, Washington, U.S. Government Printing Office, 1960.

Geographic variations in crude prevalence rates of known diabetes as reported in the National Health Survey are shown in figure 1. The highest rates were in the New England, Middle Atlantic, and West North Central States. In general, the rates were higher in the eastern to southern and western regions. The rate for the highest region, the New England States, was almost double that of the lowest, the West South Central States. The variation was much more marked than that for any other chronic condition cited in the report.

Figure 1

PREVALENCE OF KNOWN DIABETES, BY GEOGRAPHIC DIVISION  
Rates per 1,000 Population  
July 1957 - June 1959



\* Figure shown in each region is known diabetes rate for that region except that the Mountain States are combined with the Pacific States because the magnitude of the sampling error precludes showing a separate estimate for the Mountain States.

Source: U.S. National Health Survey: Selected Health Characteristics by Area, Geographic Divisions, and U.S., July 1957 - June 1959, PHIS Pub. No. 584-C6, 1961.

## DISABILITY FROM DIABETES

Uncomplicated diabetes under reasonable control causes little or no difficulty and results in little work loss except for physician visits. With the complications in later life there is considerable disability. Measurement of this disability cause the nature of some of the complications is such that it may not be ascribed rather to the complicating disease. How much this factor affects the reported from diabetes is not known.

Table 4, adapted from National Health Survey data obtained by household interview of the noninstitutional population, shows chronic limitation of activity as described by the person with diabetes. Limitation of activity includes complete limitation of activity and limitation of the person's activity even though he may be able to carry on his usual activity. About 25 percent of all diabetics have chronic activity limitation -- more in females than in males. In both sexes the percentage of persons with limitation rises with age. There appears to be a tendency toward a small peak in the rates in ages 25-44 which is visible in the rates for juvenile diabetes of some duration in these age groups. This may be contributed to by a considerable amount of disability at an age when the prevalence of diabetes is low.

In the fiscal year 1959, the National Health Survey<sup>1</sup> reported that diabetics with chronic limitation of activity constituted 2.1 percent of all persons with a chronic condition reported as causing limitation. For the more serious limitation where the person is unable to carry on his major activity 3.1 percent were disabled by diabetes. In the group with the most serious limitation in amount or kind of activity, diabetes accounted for 1.9 percent.

Table 4

Known diabetics whose diabetes caused chronic limitation of activity,  
by age and sex, U.S. civilian noninstitutional population,  
July 1957 - June 1959

	<u>Number (in thousands)</u>	
	<u>Male</u>	<u>Female</u>
All Ages	138	247
Under 25	4	4
25-44	21	27
45-54	18	37
55-64	34	54
65-74	38	82
75 and over	21	44
	<u>Percent of all diabetics</u>	
All Ages	20.9	28.4
Under 25	10.0	14.8
25-44	19.8	29.0
45-54	16.8	26.6
55-64	18.8	22.1
65-74	24.4	31.5
75 and over	30.9	40.4

Rates of disability per diabetic are shown in table 5 in terms of restricted-activity days and bed-disability days. A day of restricted activity is defined by the National Health Survey as "any day on which a person had to cut down on his usual activities for a whole day because of a condition whether or not he was confined to bed," and a bed-disability day is defined as "any day on which more than half the daylight hours were spent in bed because of a specific condition." . . .

Diabetes was responsible for about 30 million restricted-activity days per year and 10 million bed-disability days. This averages about 20 restricted-activity days and 7 bed-disability days for each year of which 8.5 days per diabetic were bed-disability days. Both restricted-activity and bed disability are highest in the diabetic females 65 years of age and over.

Table 5  
Average number of disability days associated with diabetes  
by age and sex  
U.S. civilian noninstitutional population, July 1957 - June 1959

Age	Restricted-activity days per diabetic per year	
	Male	Female
Under 15	17.0	22.0
15-44	6.3	18.7
45-64	22.5	22.4
65-74	21.4	17.5
75-84	17.2	23.9
85 and over	19.5	30.2

Age	Bed-disability days per diabetic per year	
	Male	Female
Under 15	6.6	9.9
15-44	2.1	3.9
45-64	8.5	8.9
65-74	8.2	6.2
75-84	5.5	14.0
85 and over	11.5	16.3

Source: U.S. National Health Survey: Diabetes reported in interviews, United States, July 1957-June 1959; Public Health Service Publication No. 584-821, Washington, U.S. Government Printing Office, 1960.

According to the National Health Survey<sup>1</sup> "the majority of the diabetics, sick or convalescing, are members of the usually working population either because of age, retirement status, or because they are females keeping house." Among diabetic workers in industry the problem of absenteeism is small, according to the special study by Pell and D'Alonzo (table 6).<sup>2</sup> The problem of absenteeism of diabetics appears to be concentrated among only about 4 percent of the diabetics with three or more absences in a year. The average number of days of disability among the diabetics was, however, almost twice that for the nondiabetic control group. The disability days among the diabetics was caused by other illnesses as well as by diabetes.

Table 6

## Study of sickness absenteeism in industry

Number of sickness absences during 1956 and average number of disability days among diabetics and nondiabetic controls

Number of sickness absences	Diabetics		Nondiabetic Number
	Number	Percent	
	240	61.7	259
	96	24.7	92
	37	9.5	18
	14	3.6	7
	2	.5	3
or more	0	0.	3
number of cases	389	100.0	382
disability days			
Total number	4,200		2,150
Average	10.8		5.6

## BLINDNESS DUE TO DIABETES

Eye complications leading to blindness are significant among the sequelae of diabetes. There were an estimated 28,400 persons in the United States who were blind because of diabetes. As shown in table 7, diabetic blindness is the third leading cause of blindness, constituting 8.4 percent of all blind persons. It is estimated that 11.6 percent of the total blindness in 1957 occurred as a result of diabetes. National estimates of incidence of time are not available to determine whether the absolute rate of diabetic blindness is increasing. Scattered data from States indicate, however, that this may be so.

Table 7

## Ten leading identified causes of blindness in the United States, 1957

Causes of blindness	Rate per 100,000 population	Percentage of all blind
All Causes*	197.0	100.0
Cataract	35.0	17.8
Glaucoma	26.7	13.5
Diabetes	16.6	8.4
Retinal disease	12.8	6.5
Macular degeneration	9.8	5.0
Corneal opacity	8.9	4.5
Conjunctivitis	7.5	3.8
Hereditary fibroplasia	4.7	2.4
Strabismic amblyopia	2.5	1.3
Albinism	1.1	0.6

\* Includes blindness due to cause undetermined or not specified.



# COMPLICATIONS OF JUVENILE DIABETES

The major complications developing in juvenile diabetes include coma, and vascular damage. Vascular damage is by far the most important complication and mortality. Table 8 shows the incidence of vascular lesions in juvenile diabetics followed for more than 20 years in the Joslin Clinic (Boston). Infection rarely occurred under the age of 20, but became prevalent by age 30. By 35 years of duration of diabetes nearly all patients in the series showed retinopathy; 46 percent had calcified arteries, and 40 percent had hypertension; 9 percent developed uremia; 6 percent, blindness; and 6 percent, in-

By 35 years of duration of diabetes nearly all patients in the series showed retinopathy; 46 percent had calcified arteries and 93 percent, retinopathy. Most of the complications appeared in significant proportions until the 10th to the 15th year of the known disease.

Table 8  
Incidence of vascular lesions, by age and duration of diabetes in juvenile diabetics surviving more than 20 years\*

	Albumin	Blood pressure	Retinitis	Retinitis proliferans
Age	Percent of patients by age			
6-9	0	0	0	0
10-19	4.2	1.8	4.8	0
20-29	18.5	16.7	63.2	28.7
30-39	34.7	40.3	84.4	53.1
40-49	37.6	51.9	88.0	58.4
Duration	Percent by years duration of diabetes			
0-4	0.8	0.5	0	0
5-9	1.5	1.2	2.5	0
10-14	7.0	4.5	19.0	3
15-19	18.0	15.0	59.0	18
20-24	41.0	32.0	82.0	47
25-29	39.0	44.0	88.0	46
30-34	44.0	53.0	93.0	59
35-39	63.0	70.0		

\*These comprise 28.7 percent of the 3,752 juvenile cases treated at the Joslin Clinic up to Aug. 1, 1955.

Source: White, Patricia: Natural course and prognosis of juvenile diabetes. Diabetes 5:445-450, Nov.-Dec. 1956.

## DIABETES MORTALITY AND LIFE EXPECTANCY

In 1958, diabetes mellitus caused the death of 27,501 persons (15.9 per 100,000 population) ranking eighth as a cause of death in the continental United States (table 9). In addition to persons classified as dying from diabetes, a large number of persons with diabetes died of other conditions. Studies differ on the proportion of such deaths basically caused by diabetes.

Table 10 shows the diabetes mortality rates by age, race, and sex. In all races, the death rate increases rapidly with age. The highest death rate was among the nonwhite females (21.1 per 100,000) followed by white females (18.5) and white males (13.1); the death rate for white males (11.1) was only about half of the rate for nonwhite females. Among whites the male and female rates were alike until age 25. In the ages 25 through 54, the rate for white females was slightly higher, and after age 55, the female rate was much higher. For nonwhites the female rate was higher in all ages except in the oldest. These patterns are interesting materials for epidemiologic study and are the subject of much theorizing and research. The sex-age pattern for prevalence is similar to the mortality pattern so that at least part the higher mortality in females is accounted for by a higher diabetes prevalence.

Table 9

Ten leading causes of death  
Death rates per 100,000 population,  
United States, 1960

### Rank and cause of death

#### All causes

Diseases of heart  
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues  
Vascular lesions affecting central nervous system  
Accidents  
Certain diseases of early infancy  
Influenza and pneumonia, except pneumonia of newborn  
General arteriosclerosis  
DIABETES MELLITUS  
Congenital malformations  
Cirrhosis of liver

Source: U.S. National Office of Vital Statistics. Vital Statistics — Special Reports, Vol. 52, No. 7.

Table 10

Deaths and death rates for diabetes  
by age, race, and sex,  
Continental United States, 1958

Age	Total	Both sexes	White		Both sexes
			Male	Female	
			Number of deaths		
All Ages	27,501	24,378	9,920	14,458	3,123
Under 15	177	143	67	76	34
15 - 24	203	158	77	81	45
25 - 34	575	475	285	190	100
35 - 44	977	761	458	303	216
45 - 54	2,230	1,683	867	816	547
55 - 64	5,598	4,719	1,969	2,750	879
65 - 74	9,666	8,802	3,322	5,480	864
75 - 84	6,610	6,256	2,352	3,904	354
85 and over	1,461	1,378	522	856	83
Unknown	4	3	1	2	1

Death rates per 100,000 population

All Ages	15.9	15.8	13.1	18.5	16.2
Under 15	.3	.3	.3	.3	.5
15 - 24	.9	.8	.8	.8	1.6
25 - 34	2.5	2.3	2.8	1.8	3.9
35 - 44	4.2	3.6	4.4	2.8	9.2
45 - 54	11.1	9.3	9.7	8.8	28.2
55 - 64	37.0	34.0	29.4	38.3	69.7
65 - 74	97.9	95.4	77.1	111.4	134.0
75 - 84	152.6	154.9	134.3	170.6	120.8
85 and over	173.3	182.3	166.2	193.7	96.5

Source: Vital Statistics - Special Reports, Vol. 52, No. 4.  
Current Population Reports, Series P-25, No. 212.

Mortality and expectation of life among diabetics and the general population table 11. It is evident that the mortality among diabetics is higher at every age. for diabetes were from 5 to 10 times the rates in the general population among young adults and at least double in later life.

The expectation of life is less among diabetics at all ages than the general population. A diabetic child can look forward to about 17 years of life less than his counterpart in the general population. Even at age 60 with a life expectancy of about 11 years the diabetic can look forward to 6 years less than his counterpart in the general population.

The information on diabetics is based on the experience of the Joslin Clinic and the Metropolitan Life Insurance Company.

Estimates of the potential years of life lost were made for the diabetics dying in 1950 and 1957. In the latter year, as shown in table 12, almost 400,000 man years were lost because of premature death from diabetes. Years of life lost through deaths from diabetes have increased by over 8 percent in the short 7-year interval covered by the data.

Table 11

Expectation of life and mortality rate at selected ages among diabetics and among white persons in the general population

Experience in 1947-51 for diabetic patients of Joslin Clinic first observed in 1930-51 and for general population of United States in 1949-51

Attained age	Expectation of life, in years		Mortality rate per 1,000	
	Diabetics*	General population	Diabetics*	General population
10	44.3	61.5	2.6	1.2
15	40.0	56.7	4.6	1.8
20	36.1	51.9	8.0	2.5
25	32.8	47.2	13.1	3.5
30	30.1	42.5	15.2	4.2
35	27.2	37.9	12.6	3.8
40	23.7	33.3	12.2	3.2
45	20.2	28.9	16.1	2.8
50	16.9	24.7	21.6	2.4
55	13.8	20.8	32.2	2.0
60	11.3	17.2	49.8	1.6
65	9.2	13.9	64.9	1.2
70	7.2	10.9	86.3	0.9

\*Excludes deaths within 1 week of first observation or hospital discharge.

Note: Analysis of Joslin Clinic experience by Metropolitan Life Insurance Company.

Source: Stat. Bull. (Metropolitan Life Insurance Company) 38: 2, March 1957.

Table 12

Deaths from diabetes and estimated potential years of life lost through deaths from diabetes, United States, by race and sex,

Race and sex	Diabetes deaths			Estimated potential years of life lost, 1950
	Number in 1950	Number in 1957	Percent change	
Total	24,419	27,180	+11.3	365,843
White male	8,580	9,623	+12.2	118,885
White female	13,567	14,611	+7.7	202,417
Nonwhite male	768	982	+27.9	13,600
Nonwhite female	1,504	1,964	+30.6	30,941

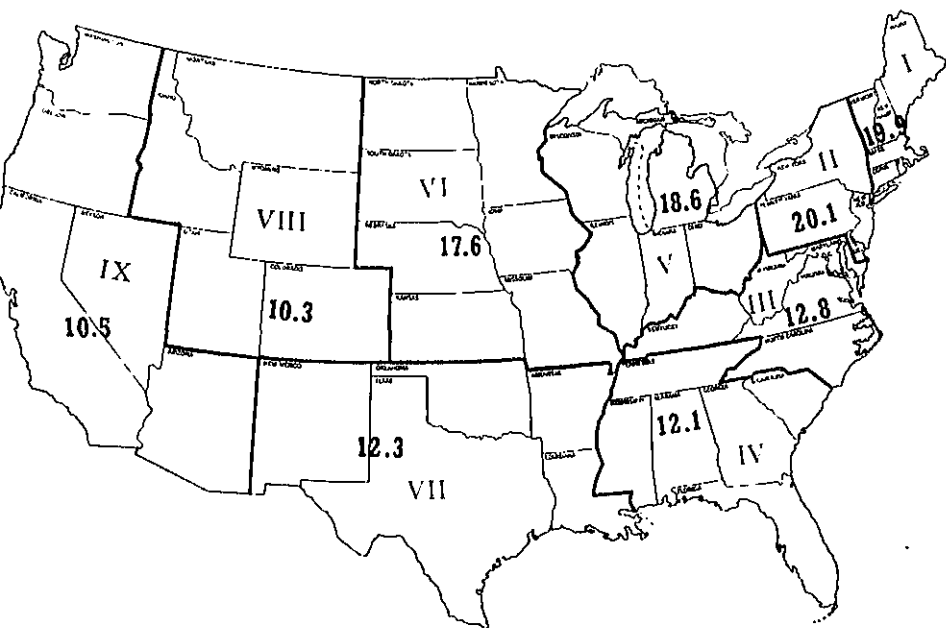
\*Based on life expectancy tables not eliminating diabetes as a cause of death.

Source: 1950 data from Grant, A.P. and Kurlander, A.B.: Diabetes mortality in the Continental United States, 369-380, April 1955.

1957 data from U.S. National Office of Vital Statistics, Vital Statistics - Special Reports, Mortality by race and sex, United States, 1957, (Vol. 56, No. 5); and Abridged Life Tables, United States, 1957.

The crude diabetes death rates by Regions of the Department of Health and Welfare (HEW) are shown in figure 2 and by States in figure 3. The highest rates were in the Northeast and North Central States, and the Southwest and lowest rates. By HEW Regions, Regions II, I, V, and VI had highest rates.

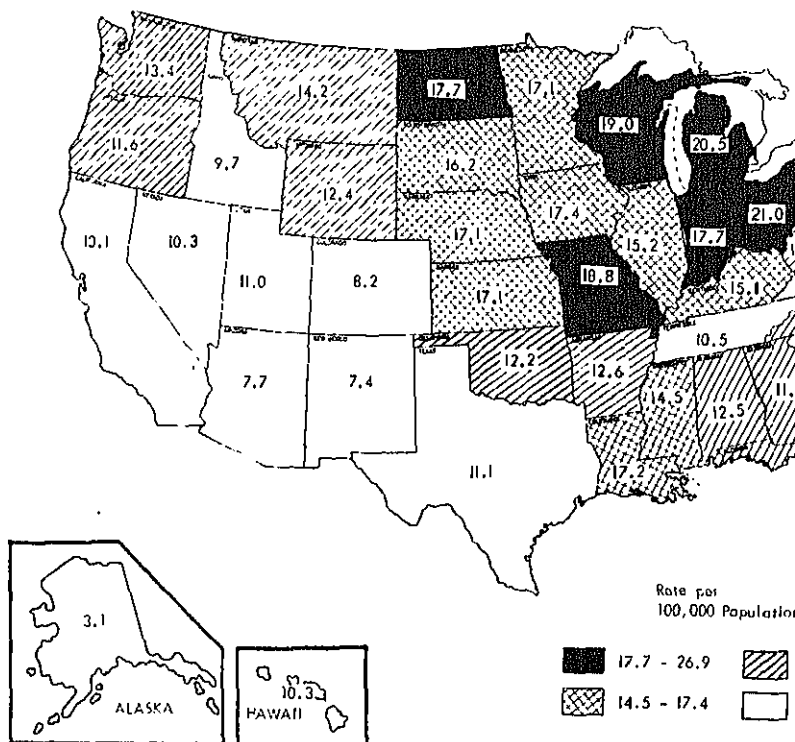
CRUDE DIABETES DEATH RATES, BY DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE REGIONS  
Per 100,000 Population, 1958



U.S. National Office of Vital Statistics - Special Reports, Vol. 52, No. 2  
U.S. Bureau of the Census Current Population Report Series P-25, No. 208

Figure 3

DIABETES DEATH RATES, UNITED STATES, 1958



The trend in diabetes death rates in the United States since 1900 is shown in figure 4. Up to 1940, the long-term trend was steadily upward even when adjustment was made for the changing age composition of the population over the time period. Between 1940 and 1950 the crude rate leveled off while the age-adjusted rate showed a slight decline. During this period a break in continuity resulted from changes in definitions and classifications of cause of death. Definition of deaths classifiable as due to diabetes was greatly expanded, resulting in a 43-percent reduction in deaths solely due to classification changes. Deaths reclassified under the new definition went into cardiovascular-renal diseases. Under the revised classification system, the diabetes death rates since 1949 have declined slightly.

Figure 4

# DIABETES DEATH RATES PER 100,000 POPULATION 1900 - 1958

Expanding Mortality Registration Area

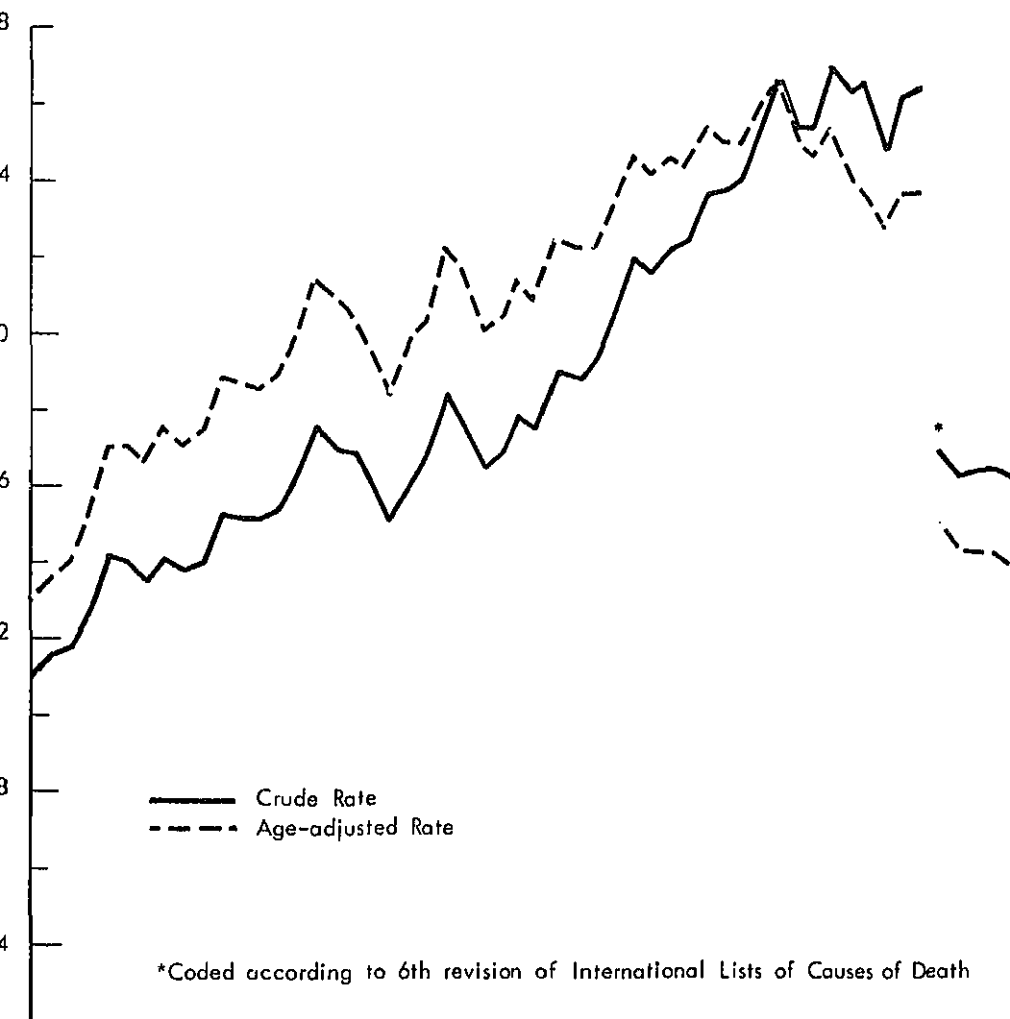




Table 13

Diabetes death rates per 100,000 population  
crude and age-adjusted  
Continental United States, expanding death registration area  
1900-1958

<u>Year</u>	<u>Crude rate</u>	<u>Age-adjusted rate<sup>a</sup></u>	
1900	11.0	13.0	
10	15.3	18.9	
20	16.1	19.8	
30	19.1	22.2	
40	26.6	26.6	
48	26.4	24.3	
50 <sup>b</sup>	28.4	24.5	14.3 <sup>b</sup>
51		16.3	14.2
52		16.4	14.2
53		16.3	14.0
54		15.6	13.3
55		15.5	13.2
56		15.7	13.3
57		16.0	13.5
58		15.9	13.4

<sup>a</sup>All rates adjusted to age distribution of the population in 1930.

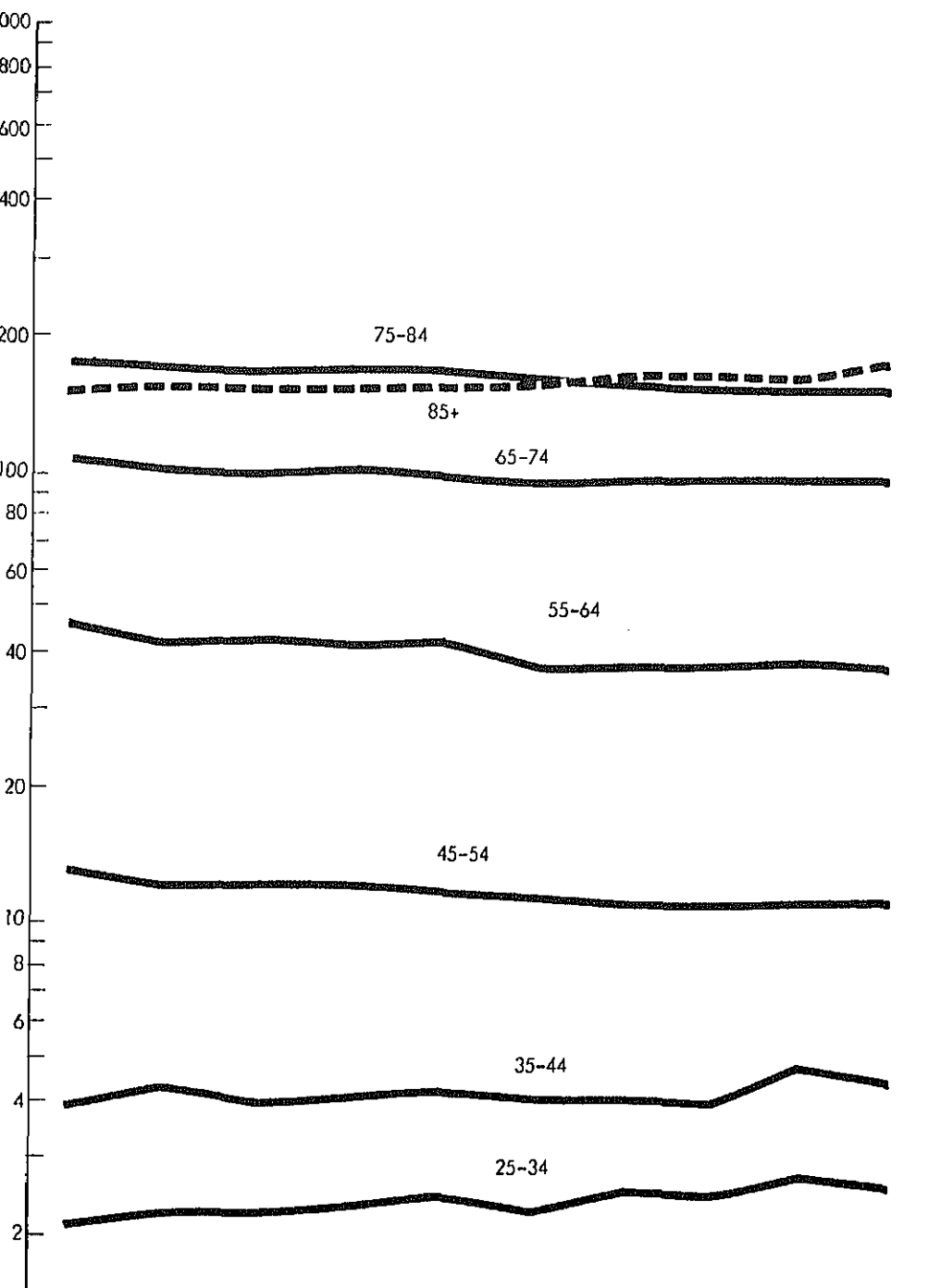
<sup>b</sup>Coded according to the 5th and 6th Revisions of the International Lists of Diseases and Causes of Death. Subsequent data are classified according to the 6th Revision (7th Revision for 1958 data).

Source U. S. National Office of Vital Statistics,  
Vital Statistics-Special Reports, Vol. 43, No. 12, and National Summaries each year, and  
unpublished data.

The recent trends in diabetes mortality by age are shown in figure 5. Very slight relatively stable rates are noted for the younger age groups. Slight decreases are noted in the middle age and increases noted in the very old. In diabetes among adults there seems to be an increase in life expectancy compensated for by a small increase in mortality in

Figure 5

DEATH RATES FROM DIABETES MELLITUS, CONTINENTAL UNITED STATES, 1949-58



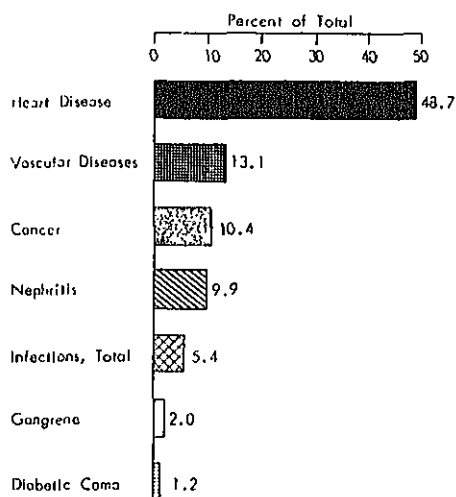
## SELECTED CAUSES OF DEATH IN TWO STUDIES OF DIABETIC PATIENTS

Not all deaths of diabetics are classified as being due to diabetes. Figure 6 presents proportional mortality for selected causes of death among diabetes patients in a large c (Joslin Clinic, Boston, Mass.) and in a community epidemiologic study (Oxford, Mass.). In both study groups, deaths classified as due to diabetes are only a small fraction of the total deaths. Deaths from cardiovascular-renal causes are about 72 percent of the total in the Joslin group and 65 percent of the Oxford group. Cardiovascular-renal causes accounted for about 58 percent of the deaths in Massachusetts in 1958. Renal diseases account for about 1 percent of deaths in the Massachusetts population but amount to 10 percent and 15 percent, respectively, in the Joslin and Oxford groups. Deaths from cancer comprised 15 percent of the total in the two study groups, but accounted for 17 percent of deaths in the general population.

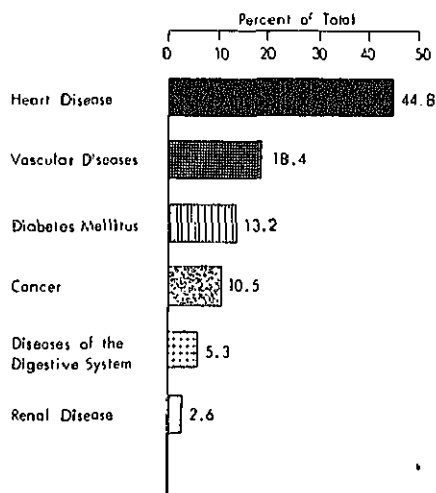
Figure 6

SELECTED CAUSES OF DEATH AMONG DIABETIC PATIENTS IN TWO STUDIES

Experience of Joslin Clinic, Boston, Mass., 1950-56\*



Experience in a Community Epidemiologic Study  
Oxford, Massachusetts, 1947-1957\*\*



\*Deaths reported through September 11, 1956

Source: Stat. Bull. 30:3, March 1957

\*\*Source: Wilkerson, H. L. C.; Krall, L. P.; and Butler, F. K.: Diabetes in a New England Town, IV-A 12-year progress report on the 70 diabetics found in the original Oxford, Mass. study. To be published.

## EPIDEMIOLOGIC FACTORS IN DIABETES

Over the many years of careful study of diabetes in population groups, certain social factors appear to be associated with the occurrence or presence of diabetes. Understanding of some of these associations and their causes will probably continue to grow. Knowledge of these factors has aided in the early recognition of diabetes. In some groups within the population may be approached more directly, making possible more intensive diabetes screening. These epidemiologic factors include age, sex, obesity, family history of diabetes, birth of a large baby or babies, high rates of fetal wastage, and other diseases.

As shown in the sections on Incidence and Prevalence, age is an important variable. Two-thirds of the estimated known diabetics are 55 years of age or older. For example, males in every age group over 45, very noticeably at ages 65-74. (See table 13.)

Diabetes prevalence is higher among the obese as measured by 20 percent or more above desirable weight. Table 14 illustrates this relationship with data from two studies: one in a rural area and one, urban. In both instances, the percentage considered obese is high among diabetics and those suspicious of diabetes. This was true of both males and females.

Table 14  
Percentage of persons overweight, by diabetes status

Two screening programs					
Area	Both sexes		Male		Female
	Number	Percent overweight <sup>a</sup>	Number	Percent overweight <sup>a</sup>	Number over
Screened	3,703	26	1,145	22	2,558
Screened positive	178	46	75	36	103
Diabetes previously known	51	51	17	46	34
Diabetes previously unknown	51	45	27	33	24
Urban area					
Screened	6,746	36	2,095	30	4,651
Diabetes previously known	293	55	104	38	189
Potential diabetes	68	48	32	41	36

<sup>a</sup>Weight defined as 20 percent or more above desirable weight according to standard height-weight tables.

Meyer, W. J.: Continuous screening in a rural area. Pub. Health Rep. 75: 784-790, Sept. 1960.

Unpublished data from Brownsville Diabetes Control Center, New York City, 1955.

has been recognized for centuries that diabetes "runs in families." Predisposition is probably inherited through a complex of factors. Environmental factors such as diet, exercise, and health and other habits undoubtedly also play a role in familial diabetes. Table 15 shows the rates of diabetes among relatives in a screening program conducted in 1958 and 1959. The age-adjusted rate of diabetes in this group is about 2 1/2 times the national prevalence rate. The difference should be considered minimal inasmuch as the diagnosis in this group was not complete and screening tests are only about 75 per cent reliable, indicating that some cases among these relatives undoubtedly were missed. The prevalence of diabetes cases in the Florida study were unknown previously. Whether this relationship between diabetes and heredity in most places in this country is not known.

Studies of the degree of the relationship most closely associated with diabetes show that it is most common among parents, next siblings, then children, and finally, other relatives. Of course, heredity is an important factor in this apparent relationship.

Table 15

Screening for diabetes among relatives of diabetics  
in Florida 1958-1959

Comparison with national prevalence rate by age,  
rates per 1,000 persons

	Relatives of diabetics in Florida			National prevalence rate per 1,000	
	Number of relatives tested	Diabetes rate per 1,000	Previously unknown	Total	Previously unknown
Grand total	322	9.3	3.1	17.6	14.5
Male	291	30.9	17.2	48.1	34.9
Female	154	51.9	39.0	90.3	79.8
White	76	118.4	39.5	157.9	119.3
Black	44	136.4	45.5	181.9	136.8
Other	13	153.8	153.8	307.6	307.6
Adjusted rate*	-	41.0	21.1	62.1	32.2

\* Rates among the relatives adjusted to the age distribution of the U. S. population by the direct method.

Compiled by Division of Chronic Diseases through the courtesy of the Florida State Health Department.

Earlier data see Parks, L. L., Remeln, O. R., Shields, L. S., and Turvaville, J.: Screening relatives of diabetics in Florida counties. Pub. Health Rep. 75: 55-59, Jan. 1960.

## DIABETES IN OTHER GROUPS

Some surveys have indicated that there are higher rates of undiscovered diabetes in patient clinic populations. Specific data are not currently available to compare clinic population samples but two studies using clinic populations had rates of 9 and 10% of previously unknown diabetes. In both studies all persons had complete diagnostic testing which makes it impossible to compare the findings directly with prevalence rates of screening programs.

Numerous retrospective studies of diabetics and "control" groups of similar age have indicated associations between diabetes and excessive birthweight of infants, perinatal loss, and other abnormal outcomes of pregnancy. Table 16 shows results of a study of nondiabetic women past 45 years of age, conducted in the Union of South Africa by Jackson.<sup>1</sup> Nine times as many babies weighing more than 10 lbs. at birth were found in the diabetic group as compared to the control group. The percentage of large babies at birth of diabetic fathers also was high.

Table 16

Children of (pre)diabetic fathers, prediabetic,  
(pre)acromegalic, and control mothers

Children		Birthweight in lbs.			
		Less than 8	8.0 - 8.9	9-10	More than 10
	Number	Percent			
of prediabetic mothers	428	22	32	15.0	31.0
of (pre)diabetic fathers*	398	48	32	9.3	10.7
of (pre)acromegalic mothers†	61	56	26	8.0	10.0
of control mothers	819	72	19	5.3	3.7

Only one mother out of 11 actually developing acromegaly had a child weighing over 9 lbs. at birth.

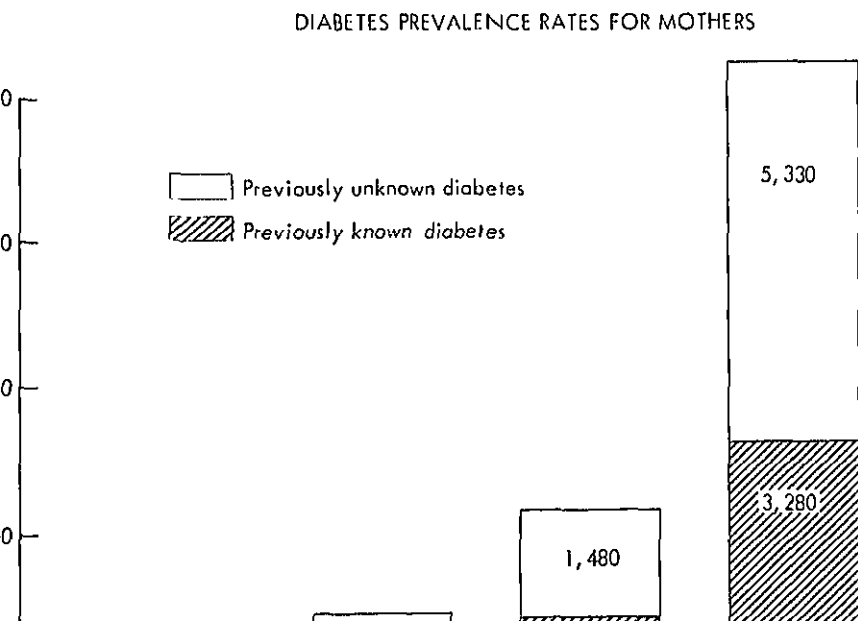
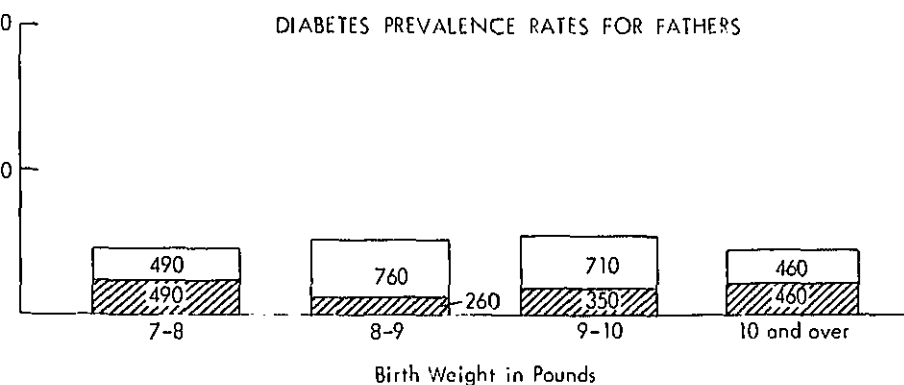
\*Plainly diabetic at time of fatherhood or developed diabetes later.

†Plainly acromegalic at time of motherhood or developed acromegaly later.

Source: Jackson, W.P.U. A concept of diabetes. Lancet 2:625-631, Sept. 24, 1955.

pective study undertaken in Columbus, Ohio, on parents of babies weighing 7 lbs. or more at birth in even years 1944 through 1954, the parents were tested for diabetes from 3 to 6 months after birth of the index child. The diabetes rates among parents according to birth weight of the index child are shown in figure 7. A significant correlation exists between diabetes in the mother and birthweight of the child, though no such association is discernible in the fathers. The diabetes rate in the sample of mothers of babies weighing 9 lbs. or more was more than seven times that for the mothers bearing an index baby of 7 to 9 lbs. These rates are those discovered through survey activity plus those already known as diabetes cases at the time of the survey, provided they had been diagnosed after birth of the index baby.

Figure 7  
OHIO DIABETES DETECTION PROJECT, 1961  
Diabetes Prevalence Rates per 100,000 Population  
by Birth Weight of Child and Sex of Parent





## Diabetes Casefinding Activities

In the fiscal year ending June 1959, 19 States, 2 Territories, and the District of Columbia reported diabetes screening activities to the Public Health Service. A total of 1,000,000 persons was reported tested in programs throughout the United States with an additional 1,000,000 in the Territories. Over 7,000 persons or 4 percent of those tested were screened and diagnosed. This summarizes these results by State. Figure 8 shows the geographic distribution of screening activities. The figures shown refer only to persons screened in organized community health centers. The number of persons tested in private physicians' offices, hospitals, and other facilities is not known.

Table 18 shows the results of diabetes casefinding programs. Only projects with complete procedures for followup to diagnosis are included in this table. For all projects, the rate of newly discovered diabetes was 7.2 per 1,000 persons tested. This rate varied greatly from State to State. Since method of testing, criteria for screening, and other factors differed greatly from State to State and from project to project, no epidemiologic significance can be attached to these differences in yield. Differences in yield may be due to variations in the percentages of completed followup, persons referred to physicians. In the poorest State, a diagnosis was obtained on only 10 percent of persons referred to physicians, while the best State approximated 100 percent. For all projects 78.4 percent of the referrals were completed to a report.

Table 17

Diabetes testing activities  
reported to the Public Health Service in the United States, by State  
fiscal year 1959

State	Number	Rate per 1,000 population	Screened positive	
			Number	Percentage
	14,333	11.8	511	3.6
	14,588	8.8	178	1.2
	505	0.2	13	2.6
Columbia	37,687	46.0	1,898	5.0
	615	0.1	19	3.1
	18,641	31.1	1,347	7.2
	3,267	1.2	123	3.8
	11,342	5.4	257	2.3
	4,208	1.4	136	3.2
	2,736	2.9	28	1.0
	14,275	1.8	179	1.3
	1,090	4.0	32	2.9
	17,964	1.1	670	3.7
olina	2,382	0.5	201	8.4
	12,244	1.3	574	4.7
	1,682	0.8	41	2.4
nia	5,272	0.5	218	4.1
	2,189	0.6	199	9.1
	8,746	2.3	306	3.5
	3,127	1.6	135	4.3
inia	9,313	NA	712	7.6
co	9,878	NA	147	1.5
ands	176,893	2.2	7,065	4.0
S. and Territories	196,084	NA	7,924	4.0

Diabetes screening data summarized from "Report of Blood or Urine Screening Project" (PHS Form 2554) submitted to the  
Diabetes and Arthritis Branch, Division of Chronic Diseases.

Population rates based on Estimated Civilian Population, Bureau of the Census, Current Population Report Series P-25, No.  
1 (September 27, 1959).

Figure 8

DIABETES SCREENING ACTIVITY  
Reported to Public Health Service  
Fiscal Year 1959

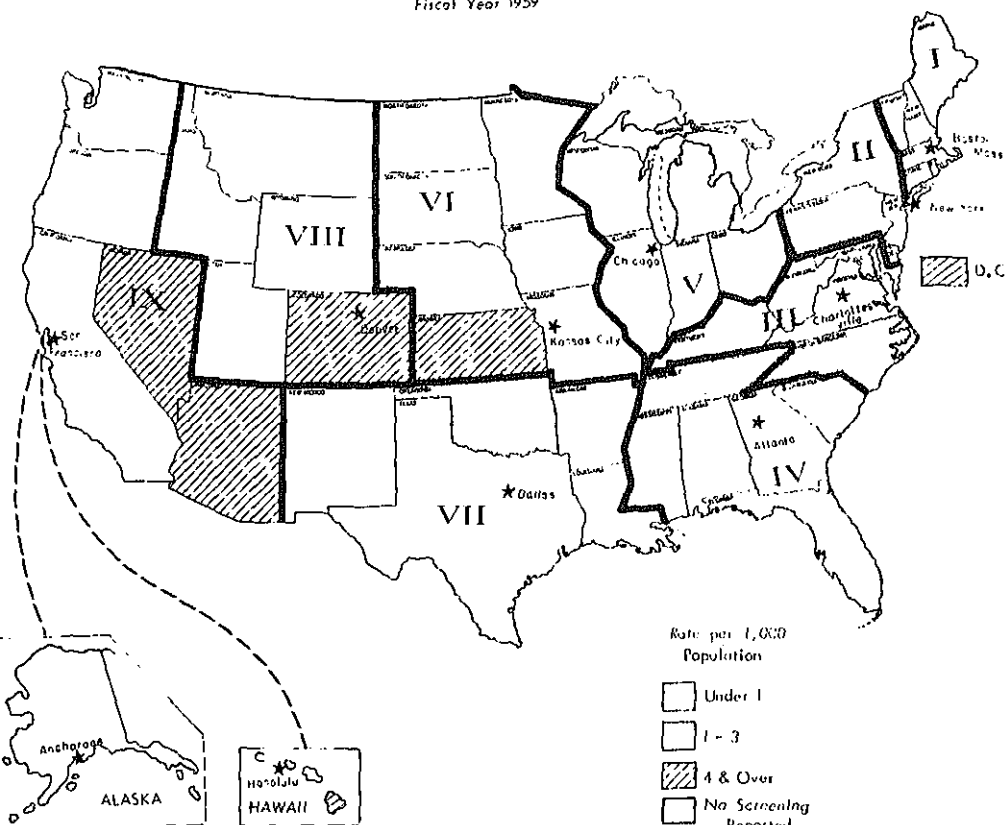


Table 18  
Newly discovered diabetics in casefinding programs  
reported to the Public Health Service, by State,  
fiscal year 1959

	Total persons tested*	New diabetics Number	Rate per 100,000 population
Alabama	14,333	69	4.8
	14,588	27	1.9
	505	2	0.4
Alaska	37,687	176	4.7
	615	4	0.7
Arizona	18,641	172	9.2
	2,267	33	1.5
	9,692	46	0.5
	4,208	13	0.3
	2,736	5	0.2
	14,275	72	0.5
	1,090	1	0.1
	2,143	28	1.3
	2,025	29	1.4
	12,244	71	0.6
	1,288	8	0.6
	5,272	41	0.8
	2,189	59	2.7
	8,746	49	0.6
	154,544	1,105	7.2

\* Followup to diagnosis are included in this table.

Screening data summarized from "Report of Blood or Urine Screening Project," U.S. Public Health Service, Division of Chronic Diseases.

† Rates based on estimated civilian population, Bureau of the Census, Current Population Reports, Series PC80-1 (March 27, 1959).

Table 19 shows the types of population groups screened by the various reported screening programs. Most of those screened were in the general population served by a community program. Other groups included employees, persons of low income and welfare cases, and those who already were patients at a medical facility.

Table 19  
Diabetes screening activities in the United States  
by type of groups, fiscal year 1959

Group	Number of persons screened	Percent of total
General population	176,893	100.0
Employees	110,842	62.8
Persons of low income and welfare	25,270	14.3
Patients	11,809	6.7
	8,986	5.1
	7,891	4.4
	7,886	4.4

Table 20 shows results by age for those screening projects reporting. are in general agreement with prevalence figures by age already shown. age and over had yield rates five to six times as great as those in the age progressive rise of rates with age was consistently noted in the individual as was the rate decrease in persons over 75.

The table indicates that diabetes screening conducted in 1959 and re Health Service concentrated on an age group of small yield, since almost persons screened in projects reporting by age were in the age group 20- was small. It is unlikely that programs not reporting by age were any m area, since their results showed an overall smaller yield than programs and 10.0 per 1,000 tested respectively).

Table 20

Diabetes casefinding results, by age  
Selected diabetes screening projects, fiscal year 19  
as reported to the Public Health Service

<u>Age group</u>	<u>Total persons tested</u>	<u>Number</u> <u>New diabetes</u>
All ages <sup>1</sup>	49,958	498
Under 20	4,086	4
20 - 44	29,380	137
45 - 64	13,103	287
65 - 74	2,081	53
75 and over	671	14

<sup>1</sup> Includes age not stated.

Source: Diabetes screening projects reporting data by age as summarized from "Report of Blood or Urine S 2589) submitted to the Diabetes and Arthritis Branch, Division of Chronic Diseases,

# FACILITIES, SERVICES, COSTS, REHABILITATION

## HOSPITAL UTILIZATION BY DIABETICS

Frequently, newly diagnosed diabetics are hospitalized in order to regulate their blood sugar into control. The hospitalization period provides an excellent opportunity for patient education. It is unfortunate that little information is available on the proportion of new cases so handled. Nor, for that matter, are many facts available of the reason for hospitalization of diabetics and the relationship of hospitalization to the disease. Table 22 shows hospital utilization rates for diabetes and various other diseases as determined in a study of Indiana's Blue Cross Service in 1956. Because of insurance restrictions this is probably not typical of the entire population, but it gives a good impression of hospitalization for diabetes. In another study conducted in Saskatchewan where insurance coverage of the population is almost complete, the rate of hospitalization for diabetics per year was 2.1 per 1,000 population compared to the 1.1 rate in Indiana.

<sup>1</sup>Goldstein, M. S. and Woolsey, T. D. Hospital utilization in Saskatchewan with special reference to variation by sex and age. U. S. Dept. of Health, Education, and Welfare, Public Health Service, Public Health Methods, Washington, D.C., 1960.

Table 22

Hospital utilization and costs for specified chronic diseases  
Blue Cross Hospital Service -- Indiana, 1956

Disease category	Admissions per 1,000 insured pop.	Average length of stay (days)	Annual days per 1,000 pop.	Hospital bill per day	Hospital bill per Adm.
All causes	115.5	7.3	838.8	\$22.91	\$166
Diseases of heart	4.3	14.3	60.9	22.43	320
Cancer	2.3	15.5	36.2	25.01	387
Strokes	.7	19.3	12.5	19.67	380
DIABETES	1.1	12.3	13.3	22.03	271
Ulcers (stomach, duodenal)	2.3	9.5	21.8	25.37	240
Diseases of gallbladder	2.9	10.8	30.7	24.07	259
Tuberculosis	.3	17.4	4.4	14.79	258

Source Health Information Foundation, Progress in Health Services, Hospital use and charges by diagnostic category, May 1960.

In table 23 distribution of length of hospital stay is shown for diabetes, all chronic diseases, and all diagnoses. The average stay for diabetics is about the same as for all diseases but it is considerably longer than for all diagnoses.

Table 23

Hospital admissions for diabetics

Average length of hospitalization and distribution of cases by hospital stay for diabetes, chronic disease, all diagnoses, discharges from general hospitals, Saskatchewan, 1951

Diagnostic category	Length of hospital stay (days)		Total	Percentage distribution by length of hospital stay in days						
	Mean	Median		1	2-3	4-7	8-14	15-30	31-60	61-90
Diabetes	18.4	11.0	100.0	2.5	7.2	22.0	31.8	24.6	8.9	1.3
Chronic disease	17.6	9.9	100.0	4.7	10.8	23.2	27.9	21.5	8.3	1.8
All diagnoses	11.1	6.3	100.0	7.7	17.8	29.3	27.8	12.0	3.8	.8

Source: Goldstein, M.S. and Woolsey, T.D.: Hospital utilization in Saskatchewan with special reference to variation by U.S. Department of Health, Education, and Welfare, Public Health Service, Public Health Methods, Washington, D.C.

## SUMMER CAMPS FOR DIABETIC CHILDREN

A quite different type of facility for diabetics is the summer camp for diabetics. According to Joslin<sup>1</sup> these camps had their beginning prior to 1927. The first such camp is said to have been started by Dr. Wendt in Detroit, Michigan. Summer camps supply medical and office management of the disease in children and provide beneficial group activities and instruction. The camp activities are not unlike those of other summer camps but they give the additional opportunity for the children to acquire self-reliance in the handling of their disease and for the close supervision in diet and control of the disease. Table 24 shows the distribution of camps by State. More detailed information is available in spring issue of the ADA Forecast each year.

Table 20 shows results by age for those screening projects reporting such results. These results are in general agreement with prevalence figures by age already shown. Persons 20 years of age and over had yield rates five to six times as great as those in the age group under 20. The progressive rise of rates with age was consistently noted in the individual projects, as was the rate decrease in persons over 75.

The table indicates that diabetes screening conducted in 1959 and reported to the Public Health Service concentrated on an age group of small yield, since almost 60 per cent of the persons screened in projects reporting by age were in the age group 20-44 in which the yield rate was small. It is unlikely that programs not reporting by age were any more successful in the area, since their results showed an overall smaller yield than programs reporting by age (10.0 per 1,000 tested respectively).

Table 20

Diabetes casefinding results, by age  
Selected diabetes screening projects, fiscal year 1959,  
as reported to the Public Health Service

Age group	Total persons tested	New diabetes cases	
		Number	Rate per 1,000
All ages <sup>1</sup>	49,958	498	10.0
Under 20	4,086	4	0.1
20 - 44	29,380	137	4.7
45 - 64	13,103	287	21.9
65 - 74	2,081	53	25.5
75 and over	671	14	20.9

<sup>1</sup> Includes age not stated.

Source: Diabetes screening projects reporting data by age as summarized from "Report of Blood or Urine Screenings, 1958" submitted to the Diabetes and Arthritis Branch, Division of Chronic Diseases.



after how well designed and operated, screening programs are carried out. The screenees are followed up with accepted diagnostic procedures and referrals. Table 21 illustrates the experiences of some community programs reported by McLoughlin, et al. These data were obtained by query of physicians for their diagnostic reports. In 76 percent of all persons referred to the program, a positive result was confirmed by a modified glucose tolerance test, a simple procedure that was used to substantiate or deny the presence of diabetes. In the majority of cases, it is concluded that further information on the accepted method of diagnosis should be sent to the physician along with the patient referral. Program reports of the latest knowledge on the diagnosis and treatment of diabetes are included. The results of casefinding programs for diabetes are to be fully realized.

Table 21

Laboratory procedures reported by physicians as used in diagnosing persons referred to them as a result of a positive screening blood sugar confirmed by a modified glucose tolerance test, Georgia, 1950-52

Patient's primary diagnostic procedure	Total referred		Diagnosed "new" diabetic		Diagnosed pre-diabetic	
	Number	Percent	Number	Percent	Number	Percent
Glucose tolerance test	1,117	56.4	419	51.5	696	62.1
Blood sugar	392	19.8	210	25.8	182	16.2
Urine glucose	40	2.0	19	2.3	21	1.9
Glucose tolerance test	352	17.8	161	19.8	191	17.1
Glucose tolerance test	80	4.0	6	.7	74	6.6
Total	1,981	100.0	815	100.0	1,166	100.0

Diagnosis was confirmed by a modified glucose tolerance test, blood sugar, and physical. Three patients had basal metabolism determinations.

Adapted from McLoughlin, C. J., Petrie, L. M., and Hodgins, T. E. Diagnostic significance of blood sugar screening tests. *Am. J. Pub. Hlth.*, 43: 182-184, Sept. 19, 1953.

Table 20

Diabetes casefinding results, by age  
 Selected diabetes screening projects, fiscal year 1959,  
 as reported to the Public Health Service

Group	Total persons tested	New diabetics discovered	
		Number	Rate per 1,000
ages 1	49,958	498	10.0
under 20	4,086	4	1.0
20-44	29,380	137	4.7
45-64	13,103	287	21.9
65-74	2,081	53	25.5
75 and over	671	14	20.9

ages age not stated.

Diabetes screening projects reporting data by age as summarized from "Report of Blood or Urine Screening Project" (PH 2558) submitted to the Diabetes and Arthritis Branch, Division of Chronic Diseases.

Table 21

procedures reported by physicians as used in diagnosing persons referred to them as a result of a positive screening blood sugar test by a modified glucose tolerance test, Georgia, 1950-52

Total referred		Diagnosed "new" diabetic		Diagnosed nondiabetic	
Number	Percent	Number	Percent	Number	Percent
1,117	56.4	419	51.5	698	60.0
392	19.8	210	25.8	182	15.6
40	2.0	19	2.3	21	1.8
352	17.8	161	19.8	191	16.4
80	4.0	6	.7	74	6.3
1,981	100.0	815	100.0	1,166	100.0

Three patients had basal metabolism determinations.

W. C. J., Pettie, L. M., and Hodgins, T. E.: Diagnostic significance of blood sugar findings. Sept. 19, 1953.

# FACILITIES, SERVICES, COSTS, REHABILITATION

## HOSPITAL UTILIZATION BY DIABETICS

Frequently, newly diagnosed diabetics are hospitalized in order to regulate treatment of their blood sugar into control. The hospitalization period provides an excellent opportunity for patient education. It is unfortunate that little information is available regarding the proportion of new cases so handled. Nor, for that matter, are many facts available on the reason for hospitalization of diabetics and the relationship of hospitalization to the disease. Table 22 shows hospital utilization rates for diabetes and various other chronic diseases as determined in a study of Indiana's Blue Cross Service in 1956. Because of the restrictions this is probably not typical of the entire population, but it gives some indication of hospitalization for diabetes. In another study conducted in Saskatchewan, where the insurance coverage of the population is almost complete, the rate of hospitalization for diabetics per year was 2.1 per 1,000 population compared to the 1.1 rate in Indiana.

Stein, M. S. and Woolsey, T. D. Hospital utilization in Saskatchewan with special reference to variation by size of hospital. Dept. of Health, Education, and Welfare, Public Health Service, *Public Health Methods*, Washington, D.C., June 1955.

Table 22

Hospital utilization and costs for specified chronic diseases  
Blue Cross Hospital Service -- Indiana, 1956

Disease category	Admissions per 1,000 insured pop.	Average length of stay (days)	Annual days per 1,000 pop.	Hospital bill per day	Hospital bill per Adm.	Annual bill per 1,000 pop.
Diabetes	115.5	7.3	838.8	\$22.91	\$166	\$166,000
Diseases of heart	4.3	14.3	60.9	22.33	320	\$13,800
Cancer	2.3	15.5	36.2	25.01	387	\$8,800
Strokes	.7	19.3	12.5	19.67	380	\$4,700
BETES	1.1	12.3	13.3	22.03	271	\$3,500
Diseases of stomach, duodenal)	2.3	9.5	21.8	25.37	240	\$5,300
Diseases of gallbladder	2.9	10.8	30.7	24.07	259	\$7,800
Tuberculosis	.3	17.4	4.9	14.79	258	\$1,200

Source: Health Information Foundation. Progress In Health Services. Hospital use and charges by diagnostic category. Vol. 1, May 1960.

in table 23 distribution of length of hospital stay is shown for diabetes, all chronic diseases, and all diagnoses. The average stay for diabetics is about the same as for all chronic diseases but it is considerably longer than for all diagnoses.

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Hospital admissions for diabetics

Average length of hospitalization and distribution of cases by hospital stay for diabetes, chronic disease, all diagnoses, discharges from general hospitals, Saskatchewan, 1951

Diagnostic category	Length of hospital stay (days)			Percentage distribution by length of hospital stay in days						
	Mean	Median	Total	1	2-3	4-7	8-14	15-30	31-60	61-90 91
Diabetes	18.4	11.0	100.0	2.5	7.2	22.0	31.8	24.6	8.9	1.3
Chronic disease	17.6	9.9	100.0	4.7	10.8	23.2	27.9	21.5	8.3	1.8
All diagnoses	11.1	6.3	100.0	7.7	17.8	29.3	27.8	12.0	3.8	.8

Goldstein, M.S. and Woolsey, F.D. Hospital utilization in Saskatchewan with special reference to variations by size of hospital. U.S. Department of Health, Education, and Welfare, Public Health Service, Public Health Methods, Washington, D.C., 1952.

## SUMMER CAMPS FOR DIABETIC CHILDREN

A quite different type of facility for diabetics is the summer camp for diabetic children. According to Joslin<sup>1</sup> these camps had their beginning prior to 1927. The first such camp is reported to have been started by Dr. Wendt in Detroit, Michigan. Summer camps supplement the hospital and office management of the disease in children and provide beneficial group instruction. The camp activities are not unlike those of other summer camps, except for the additional opportunity for the children to acquire self-reliance in the handling of their disease and for the close supervision in diet and control of the disease. Table 24 shows the distribution of camps by State. More detailed information is available in spring issue of Forecast each year.

Table 24

Summer camps for diabetic children,  
United States, by State, 1961

State	Camp	Boys	Girls
Alabama	Camp Seale Harris	x	x
California	Bearskin Meadow	x	x
	Camp Dase	x	x
	Uni-betic Camp	x	x
Colorado	Camp Chief Oaray	x	x
Illinois	Summer Camp for Diabetic Children	x	x
Indiana	Camp James Whitcomb Riley	x	x
Maryland	Camp Wonderland	x	x
Massachusetts	Clara Barton Birthplace Camp		x
	Elliott P. Joslin Camp	x	
Michigan	Camp Madicha	x	x
Minnesota	Camp Needlepoint	x	x
Missouri	Camp Hope	x	x
	Camp Lions' Den	x	x
Nebraska	Camp Floya Rogers	x	x
New Jersey	N. J. Camp for Diabetic Children	Details not yet avail.	
New York	Camp Nyda	x	x
North Dakota	Camp Sioux	x	x
Ohio	Camp Ho Mita Koda	x	x
	Camp Za-Ni-Ka	x	x
Oregon	Gales Creek Camp	x	x
Pennsylvania	Camp Firefly	x	x
	Camp O'Connell	x	x
South Dakota	Camp Haunz	x	x
Tennessee	Double G Ranch	x	x
Texas	Camp Manison	x	x
	Camp Sweeney	x	x
Washington	Camp Banting	x	
	Camp Priscilla White		x
West Virginia	Camp Kno-Koma	x	x
Wisconsin	Camp Sidney Cohen		x
	Camp Whitcomb	x	

Source: "Countdown for Summer Camps," ADA Forecast, 14-15-16, May-June 1961.

# COMPENSATION COSTS FOR DIABETES

shows the Federal costs per month for compensation for diabetes among war veterans. Latest available figures indicate that 15,818 veterans receive compensation for a result of diabetes. The costs have been steadily rising in recent years so that more than \$1 million dollars per month in compensation is provided veterans disabled by

Table 25

## Diabetes among war veterans

Number of veterans receiving compensation for service-connected disabilities or pension for nonservice-connected disabilities, September 30, 1956, where the major disability was diabetes mellitus

	Total number	Service-connected	Nonservice- connected
	15,818	9,464	6,354
	7,130	6,781	349
	6,173	169	6,004
Disability	270	270	---
	2,245	2,244	1

## Monthly value of payments

\$ 713,641

\$ 826,203

\$1,096,851

Information from Department of Medicine and Surgery, Reports and Statistics Service, Veterans Administration.

# ONAL REHABILITATION OF DIABETES

c 26 shows the number of persons disabled from diabetes who were rehabilitated by vocational rehabilitation agencies for the fiscal years 1945-1958. The trend is upward for total persons rehabilitated and in those disabled from diabetes who were rehabilitated. By the percentage disabled from diabetes of total rehabilitants, the rehabilitation of persons with diabetes has been increasing at a faster rate than the total.

Table 26

Number of persons by State vocational rehabilitation agencies,  
disabled from diabetes \* rehabilitated, fiscal years 1945 - 1958

Total number of rehabilitants	Rehabilitants disabled from dia	
	Number	Percent total rehab
41,925	197	.5
36,106	208	.6
43,880	342	.8
53,131	445	.8
58,020	527	.9
59,597	546	.9
66,193	689	1.1
63,632	733	1.2
61,308	687	1.1
55,825	690	1.2
57,981	731	1.3
65,640	899	1.4
70,940	1,031	1.5
74,317	1,104	1.5

Year 1945 based on 20-percent sample. Data for fiscal years 1946 and 1953-1958 partially estimated.

Source: Case Reports, Form R-9, Office of Vocational Rehabilitation, Division of Statistics and Studies, May 1959 (BR 160-59).